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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,808	09/15/2003	Yutaka Ochi	P69141US0	7384

7590 08/06/2007
JACOBSON HOLMAN PLLC
400 SEVENTH STREET, N. W.
WASHINGTON, DC 20004

EXAMINER

XIAO, KE

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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08/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/661,808

Applicant(s)

OCHI ET AL.

Examiner

Ke Xiao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Tanaka (US 6,052,112).

Regarding **Claim 1**, the AAPA teaches a method of driving a vertically aligned liquid crystal display (AAPA, Figs. 8 and 9) comprising the steps of:

dividing one field into a plurality of subfields including at least a first subfield shorter than a given period for which an output light of a liquid crystal varies from a white level that is a saturated level (AAPA, Fig. 9 1F into subfields B0-B5, B0 is shorter than the given period), to a black level and a second subfield longer than the given period (AAPA, Fig. 9 subfields B2 and B3 together can make up one subfield which is longer than said period), the first subfield having one display-off period for which the liquid crystal is not driven and one display on period for which the liquid crystal is driven (AAPA, Fig. 9 subfield B0) and the second subfield having a plurality of display off periods for which the liquid crystal is not driven and a plurality of display on period for which the liquid crystal is driven (AAPA, Fig. 9 subfields B2 and B3), each display off period of the second subfield being shorter than the given period, the display off period

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of the first subfield being equal to each of the display off periods of the second subfield (AAPA, Fig. 9 all display off periods are equal); and

supplying at least a saturated drive voltage as a digital drive signal to the liquid crystal for each display on period to modulate light incident in the liquid crystal (AAPA, Figs. 8 and 9, V_p).

The AAPA fails to teach that the ratio of the display on periods of all the subfields to the one field being in the range of 1:6 to 5:6. Tanaka teaches such a ratio for any subfield scheme gradation display including liquid crystal displays (Tanaka, Fig. 3, Col. 16 lines 55-65). It would have been obvious to use the overlapped driving scheme of Tanaka as opposed to the generate subfield driving scheme of the AAPA in order to improve gradation image quality of moving images (Tanaka, Col. 5 lines 50-55).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Tanaka (US 6,052,112) as applied to Claim 1 above, and further in view of Chen (US 2003/0080931).

Regarding **Claim 3**, the AAPA in view of Tanaka fails to teach a step of supplying a voltage larger than the saturated drive voltage to the liquid crystal. Chen teaches increasing the voltage supplied during a transition from a low state to a high state above than the saturated drive voltage, called overdrive (Chen, Pgs. 4-5 paragraph [0048]). It would have been obvious to one of ordinary skill in the art at the time of the invention to supply a voltage higher than the saturated drive voltage to the liquid crystal display as taught by Chen in the device of the AAPA in view of Tanaka in order to shorten the response time of the liquid crystal (Chen, Pgs. 4-5 paragraph [0048]).

Response to Arguments

Applicant's arguments with respect to Claims 1 and 3 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571) 272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 2nd, 2007 - kx -


SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER